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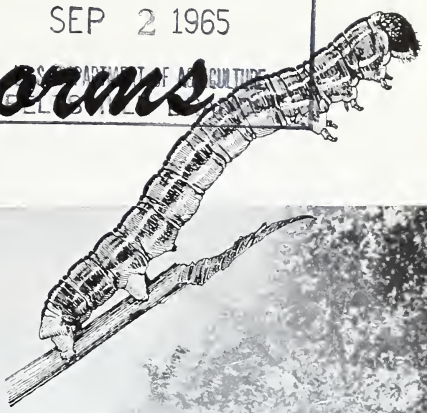
Cankerworms



U. S. DEPARTMENT OF AGRICULTURE
LEAFLET NO. 183

CANKERWORMS

Division of Forest Insect Research, Forest Service

CANKERWORMS destroy the foliage on many kinds of forest, shade, and fruit trees. Repeated defoliations prevent trees from growing normally, and weaken them so that they become susceptible to other insect pests and disease.

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Elm trees defoliated by cankerworms.

Cankerworms are known also as loopers, inchworms, and measuring worms because they crawl by arching their bodies high and pulling their hind legs up to meet their forelegs. Sometimes so many of them spin down on long silken threads that they create a local nuisance.

There are two species of cankerworms in the United States, the fall cankerworm [1] and the spring cankerworm,[2] so called because of

[1] *Alsophila pometaria.*
[2] *Paleacrita vernata.*

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the season when the adult moths emerge. Both species prefer the foliage of apple and elm, but they may also attack several of the oaks, as well as cherry, hickory, maple, ash, beech, and linden.

When you first see cankerworms eating a few terminal leaves early in May, you may think their damage to your trees will be slight. Unfortunately, as the season progresses the pests grow, and so do their capacities and requirements for food. More and more of their injury becomes evident. On approaching full growth, cankerworms destroy all but the midribs and larger veins in the leaves, and the crowns of trees they attack often appear ragged.

The fall cankerworm occurs from Nova Scotia and southern Canada, through the Northeastern States, south to North Carolina, west to Missouri, and northwest to Montana and Manitoba. It is also found in Colorado, Utah, and California.

The spring cankerworm has the same general range but extends farther to the southwest than does the fall species. It is found from Nova Scotia south to North Carolina, southwest to eastern Texas, west to Colorado, and north to Manitoba. It has also been found in California.

Learn the Differences Between Fall and Spring Cankerworms

Although the adult moths of one species of cankerworm emerge in the fall or early winter, and those of the other species in the spring, the larvae, or cankerworms, of both species appear at about the same time. Both species may be present in the same tree.

Eggs of the fall cankerworm are shaped like tiny brownish-gray flowerpots. The female lays about 100 of them in a compact single layer on the bark of twigs and branches. Spring cankerworm eggs, which look like dull oval pearls, are usually laid in bark crevices in loose, irregular clusters of about 50.

Fall cankerworm larvae are 1 inch long when full grown, whereas spring cankerworms are only ¾ inch long. The fall species are light to dark green with dark stripes down their backs, and the spring species light green to brown or black with pale, whitish lines down their backs. The color is variable for both species.

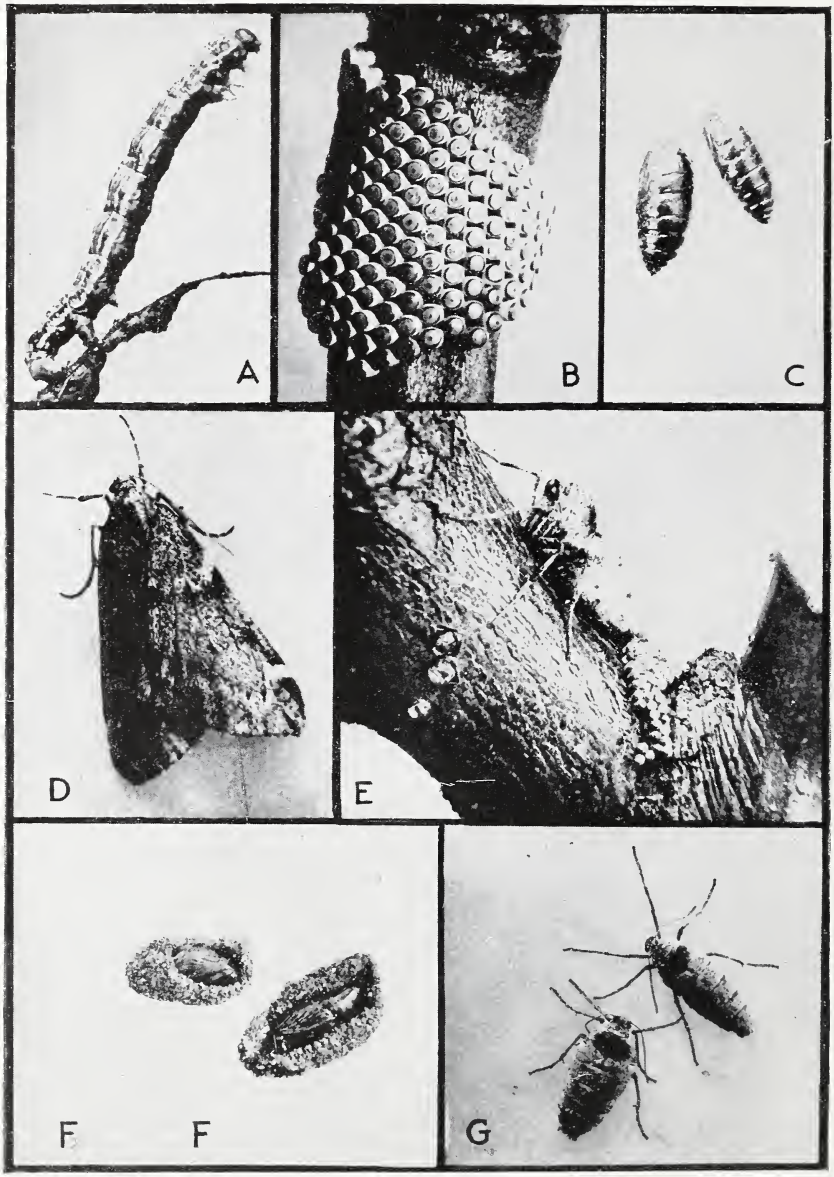
If you want to know which species of cankerworm is in your trees, turn one over on its back. If it has a pair of small, fleshy, useless legs on the fifth abdominal segment or eighth body segment (counting from the head), it is a fall cankerworm. If it has no such legs, it is a spring cankerworm.

The full-grown larvae enter the soil to transform into adult moths. Before they can emerge as moths they go through a resting, or pupal, stage. The pupae of the fall cankerworm are enclosed in cocoons, but those of the spring cankerworm are not. Pupae of both species are about ⅓ inch long and brown.

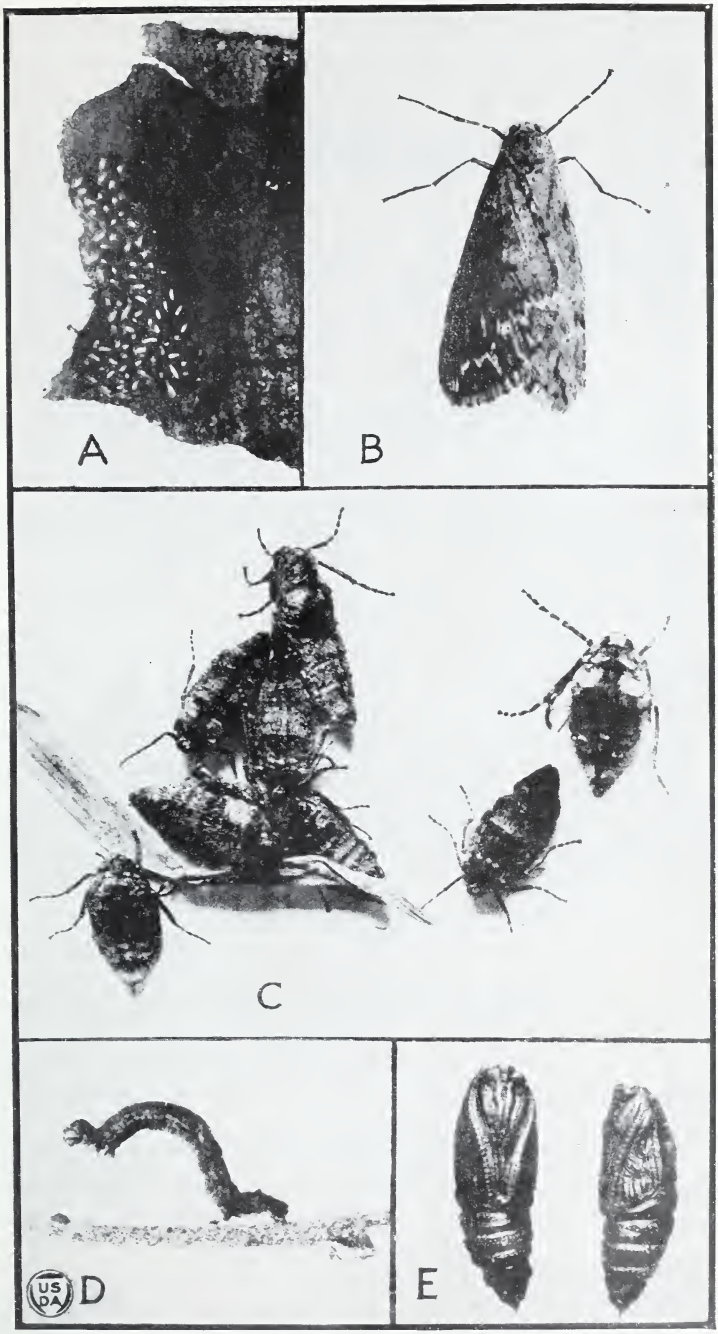
Most of the moths of the fall cankerworm come out in November and the first half of December, although some continue to appear during warm periods in the winter. The spring cankerworm moths emerge in March and April. You are more likely to see the males than the females, for only the males can fly, and they are attracted to bright lights. You will hardly recognize the females as moths for they have no wings.

Cankerworm moths are brownish gray and the two species are similar in appearance and size. The males have a wing spread of about 1 inch, the wings of the spring moths being more delicate, semitransparent, and somewhat lighter in color.

The abdomen of the fall species is without spines. In the spring species there are double rows of reddish spines across the abdominal segments.



The fall cankerworm. *A*, Full-grown larva (× 2½); *B*, cluster of eggs (× 7); *C*, pupae (× 2¼); *D*, male moth (× 3); *E*, female moth laying eggs (× 3); *F*, pupae in cocoons in the soil (× 1¾); *G*, female moths (× 2¼).



The spring cankerworm. *A*, Eggs on inner surface of a piece of bark (× 3½); *B*, male moth (× 2½); *C*, female moths (× 3½); *D*, partly grown larva (× 3); *E*, pupae (× 4).

The various stages of both species of cankerworms are shown on pages 4 and 5. If either of these pests is present in your trees you will want to get rid of it.

Nature Needs Help

Natural forces such as cold, stormy weather, insects, spiders, birds, and diseases, normally keep cankerworms under control. Sometimes, however, the natural balance is upset and outbreaks occur. The wise owner helps nature by protecting his trees against cankerworms.

Control With Sprays

In orchards cankerworms seldom get out of hand, if you follow spray schedules recommended by your State agricultural experiment station.

If you own large, income-producing orchards, woodlots, or forested tracts, or are responsible for the protection of park or roadside trees, you may have to plan a large-scale program against cankerworms. Weigh the differences in cost between having the spraying done by a commercial company and using your own equipment, and the ability of the commercial company to make applications when needed.

If you decide to buy your own equipment, there is a wide choice. Aircraft is most suitable for spraying over large forested areas. Mist blowers are best suited for the treatment of roadside trees, in town or country, and also for small forested areas having access roads. Hydraulic sprayers are adapted to spraying roadside trees. They can also be used in reaching wooded areas inaccessible to mist blowers.

If you have only one or a few trees to protect, it will probably cost you less to use the services of a qualified arborist. Such services cost less than purchasing the equipment and spraying tall shade trees yourself.

What Insecticides To Use

Lead arsenate and DDT may be used to control cankerworms.

For Application by Aircraft

DDT is the most satisfactory for aerial use. An oil solution or a water emulsion containing ½ pound of DDT per gallon is applied at the rate of 1 gallon per acre. The spray is usually prepared from concentrates which are widely available commercially.

For Application by Mist Blowers

Lead Arsenate.—Use a spray containing approximately 25 percent of lead arsenate. Mix 2 pounds of the powder with 7¼ pints of water plus a sticker such as ½ pint of mineral oil (viscosity 50 to 100 seconds Saybolt).

DDT.—Use an emulsion containing 6 percent of DDT. Mix 24 gallons of 25 percent DDT emulsion concentrate with water to make 100 gallons.

For Application by Hydraulic Sprayers

Lead Arsenate.—Mix 3 pounds of lead arsenate powder in 100 gallons of water plus a sticker such as 12 ounces of fish oil or linseed oil. This spray may stain buildings.

DDT.—Mix 1 quart of a 25-percent DDT emulsion concentrate or 1 pound of 50 percent DDT wettable powder in 100 gallons of water.

Apply enough spray to wet leaves and stems but not enough to cause dripping and runoff of the liquid.

Other Insecticides

Carbaryl and malathion are low-persistence insecticides being used against a number of forest defoliators. Although these chemicals may be useful for control of cankerworms, they have not yet been fully evaluated for this purpose. Consult your county agricultural agent or Extension Service agent for the latest information.

Precautions

Most insecticides are poisonous to people and to animals. Handle them with care. Store them in closed, plainly labeled containers. Put them out of the reach of children and animals.

Follow all directions and heed all precautions given on the labels.

When handling insecticides, avoid repeated or prolonged contact with the skin and inhalation of dusts, sprays, and vapors. After handling insecticides, wash hands and face before eating or smoking.

Concentrates require special precautions. Avoid spilling them on the skin and keep them out of the eyes, nose, and mouth. If you spill a concentrate on your skin or clothing, wash it off and change clothing immediately. If it gets in your eyes, rinse them with plenty of water for 15 minutes and get medical attention.

To protect sources of water supply, fish, and wildlife, be careful not to contaminate streams, lakes, or ponds with insecticides. Do not clean spraying equipment or dump excess spray material near such water. Avoid contaminating pasture grass, forage crops, or feed by drift of sprays. Unless the empty insecticide containers are being returned to a supplier, destroy them. Crush or mutilate and burn the containers in a hot fire, or bury them, to prevent use for other purposes.

When To Apply Sprays

To control cankerworms, spray soon after the eggs hatch. In the Northeastern States the eggs usually hatch in April or the first week in May. This is the time when the leaves are unfolding on most of the hardwoods.

Control With Sticky Tree Bands

If you have only a few trees and decide that spraying them is too costly, you may want to apply sticky tree bands. Such bands will keep the wingless female moths from crawling to the upper branches to lay eggs. Buy sticky material for making bands, and make a satisfactory foundation for this material from cheap cotton batting and single-ply tarred paper. Cut the cotton into a strip about 2 inches wide and wrap it around the tree trunk. Next, cut a strip of tarred paper 5 inches wide and draw it tightly around the tree, over the cotton strip, tacking it securely where it overlaps. Now spread the sticky material over the tarred paper. Plug all crevices under the paper band, and inspect it occasionally to see that there are no small openings where the female moths or young caterpillars could crawl beneath it. Stir the surface frequently with a putty knife or a thin hardwood paddle to free it of foreign matter and to keep it sticky enough to prevent moths from crawling over.

Do not apply sticky material directly to the bark, as it will leave a dark streak around the tree which may persist for years. It may also injure thin-barked trees.

The wind may blow small caterpillars hanging on long silken threads to points above the band on your tree. If many cankerworms reach the foliage by this route, the band becomes less useful. You can sweep the cankerworms down from their threads, but you cannot keep them from reaching points above the band.

Put the bands in place before the middle of October and keep them sticky until the ground is frozen. When the infestation is heavy, renew the bands as soon as the ground thaws in late winter or early spring. Keep them sticky until the apple blossoms have fallen.

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